

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended)

A method for performing a medical procedure, comprising:

providing a catheter having at least one position sensor for generating or receiving signals for use in determining position information of a portion of the catheter in a heart of a subject;

recording geometric information at a plurality of time points in a plurality of cardiac cycles of a the heart of a the subject using the at least one position sensor of the catheter;

subsequently detecting a transient event produced at a location on the heart during a cardiac cycle;

identifying a time of occurrence of the transient event in the cardiac cycle during which the transient event occurred; and

displaying a map of the heart responsive to the identified time of occurrence and the geometric information recorded at a time point in the cardiac cycle that corresponds to the time of occurrence of the transient event.